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## Measurement and Testing a High-Performance Organizational Culture Model in Iran Petrochemical Industries

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### Abstract

The purpose of this article is to measure and test a high-performance organizational culture model in Iran's petrochemical industries. This research is of quantitative type. In terms of purpose, it is exploratory and data collection method is survey. From the point of time period, it is cross-sectional. Data collection tool is a researcher-made questionnaire which validity has been confirmed by industrial and academic elites. The reliability of the questionnaire was confirmed by Cronbach's alpha test (coefficient of 0.815). The statistical population of the study included 8050 employees of Petropars, Jam, Lavan and Fanavaran petrochemical companies working in Iranian Petrochemical Industries. The sample size was calculated by the Cochran's formula of 385 people. 420 questionnaires were distributed and 400 correct questionnaires were collected. The sampling method is stratified random. Data analysis was performed using structural equation modeling and Amos Software. The results of statistical analysis were confirmed by confirmatory factor analysis and in terms of significance by the method of structural equations up to the level of the main categories and after confirmation of formal and content from 400 experts and managers of petrochemical industries. In the next step with a quantitative approach, the current state of high-performance organizational culture according to the extracted pattern was defined. For this purpose, mean comparison, regression and repetition tests were used. The results obtained from field survey indicated that the high-performance organizational culture model was approved and dimensions of Behavioral factors, Internal bedding factors, External bedding factors and Process factors were placed in the first to fourth priorities, respectively.

**Keywords:** *High Performance Organizational Culture; Confirmatory Factor Analysis; Structural Equation Method; Petrochemical Industries.*

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## Introduction

Organizational culture is an environmental variable that affects all members of the organization to different degrees and therefore a proper understanding of this structure is important for effective organizational management and work (Nyberg et al., 2013). Organizational culture is a common and relatively stable model of values, beliefs and core beliefs in an organization. Therefore, it can be said that any fundamental change in the organization is possible only by knowing the culture of that organization (Asgarian, 1397). On the other hand, a very important concept of organizational culture that is proposed in the today's world and can have a significant impact on organizational performance, is high performance culture (Garvin, 2018) and managers can overcome high levels of uncertainty and complexity by creating a high-performance culture with the goal of empowering and engaging employees (Titiev, 2019; BCG, 2013). High-performance culture is a type of culture that creates a physical and psychological environment in the organization where employees are as efficient as possible to support the organization's key goals and values (Gartner, 2019). High performance culture can lead to organizational growth and excellence with increasing the level of organizational empowerment and job engagement and creating an atmosphere of continuous learning among them (Queen, 2019; Warana, 2018). High-performance organizational culture is one of the basic foundations of creating high-yield organizations (Warana, 2018).

On the other hand, industries around the world have realized that in order to succeed in a complex global economy and survive in a competitive business environment, they need a model to improve their performance and studies have shown that it is one of the most effective foundations of high-yield organizations (Tazkan, 2018). Therefore, high-performance organizational culture in pioneer organizations and companies has been given special attention as an organizational model, the implementation of which is the responsibility of the organization's top leaders (Barret, 2018). In this regard, the country's petrochemical industry in recent years has made great efforts to improve the level of organizational culture, but the general problem is that many organizational culture programs fail due to lack of background and preparation. sometimes they do not achieve the expected results and most of the programs and efforts that are started with

the aim of creating change in the field of organizational culture remain unfinished. The leaders of these organizations have experienced many challenges to build a culture that promotes high performance, promotes accountability for excellence, and fosters a climate of continuous development. While, the general problem of the industries in this field is that the leaders of these companies have difficulty in creating a culture that encourages high performance, encourages responsibility for excellence, and creates the conditions for continuous improvement. Their particular problem also is that most middle managers do not have a clear strategy to create a high-performance organizational culture (Ministry of Petroleum Research Center, 2016) For these reasons, these industries are still far from the level of performance of their global and regional competitors (Research Center of the Ministry of Oil, 2013).

The above events show that, given the arrival of large petrochemical industries in neighboring countries such as Turkey, Saudi Arabia and the UAE and even India, which has made the market of petrochemical products highly competitive in the region, Iran's petrochemical industry needs to compete and survive in this dynamic environment seek to create a functional culture and thus increase their performance (Research Center of the Ministry of Oil, 2017). Considering the importance of high-performance organizational culture, researchers in this study seek to design a model of high-performance organizational culture in the petrochemical industry as the case study to identify the dimensions, components and indicators of high-performance organizational culture to pave the way many cultural and functional issues for the country's organizations.

### **Review Of Theoretical Foundations and Research Background**

If we want to have a more efficient and effective organization, we must recognize the role of culture in organizational life (Matin, 2011). Organizational culture affects all aspects of the organization (Elearn, 2017). Organizations should carefully craft their culture if they seriously aim for consistency and high-level performance (Stewart, 2015). On the other hand, today there is a growing trend in global organizations that focus heavily on the importance and impact of corporate culture as a vital factor that can both dramatically increase performance and sustain the organization's talents (Gartner, 2019). organizations to become high-performance culture,

they need to develop the type of culture that will allow them to effectively cope with the strategic trends while at the same time attract and retain a highly talented, motivated, and committed workforce (Kontoghiorghes, 2016). Handy's (2007) and Calciolari et al.'s (2018) classifications of organizational culture might not include the ultimate type that answers all needs of a growing competitive organization, the benefits of collaboration, flexibility, transparency, and creativity belong to organizations with a high-performance corporate culture (Ali Taha et al., 2016). Organizations could build a supportive culture for diverse talents to succeed and grow if the leaders exemplify and promote the values of high-performance culture. A culture, based on value-creating goals is crucial for an organization that is aiming to execute to its full potential (Gilbert, 2007). The best way to achieve a sustainable competitive advantage in a dynamic market is not through the development of innovation and organizational culture, but in building and improving a high-performance culture.

There are multiple definitions available in contemporary literature on high-performance organizational culture. Kontoghiorghes (2016) introduces high-performance corporate culture as one that promotes values of trust and integrity, risk-taking, quality, and innovation. Maintaining a high-performance culture in the organization is vital for developing a vision of excellence (Gillespie, 2012). Fareed et al (2016) defined high-performance work system as an effective means of fostering employees within an organization. High-performance organizational cultures and subcultures emerge in homogeneous populations with a democratic team leadership. Cooperation between high-effort employees at management levels interact with any types of effort behaviors of employees to form positive cultural foundations (Barret et al., 2018). High Performance Culture (HPC) is a way to work and set a collection of values that motivate and engage employees and contribute to achieve goals (Scorbar et al., 2018). Graham et al (2020) defined high-performance organizational culture as a culture that promotes the behaviors needed to successfully execute strategies and achieve company goals. Lapshin (2020) introduces a high-performance organizational culture as a culture that promotes the values of trust and honesty, risk-taking, quality and innovation, and he believes that by creating a high-performance organizational culture, business leaders create an environment in which employees strive to

perform at their best. An organization with a high-performance culture creates a push atmosphere that helps develop the environment to achieve the best performance (Hamerling, 2013). Sharir (2016) sees high-performance culture as the creation of a pioneer mindset that engages and aligns each individual with vision, mission, and values, and takes them out of the ordinary discourse of excellence. This culture creates a new capacity for growth and develops a resilience to move forward in the face of potential challenges, change, and confusion. Marsick et al (2017) introduce the concept of high-performance culture as a culture that is constantly learning and changing itself. In such an organization, continuous learning is strategically applied in processes, people align around a common goal, change their environment, and generate new knowledge, which in turn it uses creating new products and services to meet customer needs.

The impact of the high-performance organizational culture on the business should not be overlooked. O'Neill (2018) discussed the impact of high performing culture on norms, processes, and behaviors in the workplace that encourage such performance. Strive for excellence in the business organization creates positive reciprocity in the closed social environment and employees' behavior. A culture of weak communication, non-transparent and untrustworthy leadership, abuse of power, and inflexible structures and processes is a type of culture that is unlikely to be classified as a high-performance, stable culture in the long term. We can look at the US financial sector and its recent Wall Street issues as examples (Span, 2017).

### **High-Performance Culture Versus Mediocrity**

Overcoming mediocrity, or lack of ambitions for the best, is the one of the challenges leaders face on their journey to a high-performance culture. Baradat and Phillips (2017) shared a concern about democratic institutions that by proudly promoting ideals of fairness, equality, and egalitarianism perpetuate mediocrity and diminish the excellence. As it might be arguably correct in for life in general, is it also true for the business. Paul (2016) pointed out that excellence in business is replaced by average because of managers and leaders stop paying attention to what matters the most. Hermanowicz (2013) described mediocrity as a situation in which an averageperforming individual makes decisions on what to do with the high-

performers. For years, general opinion considered midlevel managers as a bureaucratic, change opposing layer of an organization (Belasen, 2017). Gilbert (2007) warned that the only way businesses could avoid the potential trap of complacency and mediocrity is by adopting the policy of the fair distribution of the wealth and implementing the practices of good performance engineering. In other words, the maintaining incentives and accomplishments personal along with distinguishing exemplary from mediocre performance, continuously promoting the former. Gilbert defined the credo of performance engineering by inverting the Communist Manifest of Marx: "From each according to his need, to each according to his ability" (2019, p. 105). Leaders and managers may contribute to creating a high-performance organizational culture by adopting this credo. When you walk into a company with a high-performance culture, you can feel the difference from where the work is done only by force. You will see the staff there capable and energetic. Instead of being confused and forced to accept, they have confidence in the organization's strategies and the changes that are taking place. They know what they are going to do and how to relate to their stakeholders. In such companies, your informal observations can be quickly confirmed by performance results (such as stable earnings and growing market share) and strong social impact (Span, 2017).

#### **Research Questions:**

1. To what extent the high-performance organizational culture model derived from the qualitative part of the research is valid?
2. What is the priority of dimensions, components of high-performance organizational culture?

#### **Category of High-Performance Organizational Culture Studies**

**Lepshin** (2020) Thesis entitled High Performance Culture and Company Success; Using the Behavioral Engineering (BEM) model of **Gilbert** (2007), which measures people's performance based on their behavior and identifies four drivers for achieving a high performance culture: 1- Creating an environment of trust and security 2- The way things are done are important and important 3- Embracing the leadership style 4- Strengthening the culture of feedback related to work, immediate, special and educational. **Kenin et al.** (2020) design a multilevel model to explain the impact of

performance culture on knowledge sharing and empowerment on knowledge sharing; The success of the organization in implementing any strategy, including knowledge sharing, largely depends on employee empowerment. Finally, the effect of participatory organizational culture on knowledge sharing at one level and the number of faculty members at the organizational level was investigated. The quantitative effect of staff on increasing knowledge sharing was confirmed by multilevel modeling and HLM software. The process of analyzing the 5-step data of Marshall and **Rosman** (2018) on high-performance organizational culture identified the following characteristics for it: (a) creating an environment of trust and safety, (b) how things are done, (C) acceptance of leadership style; and (d) application of work-related, immediate, specific, and educational culture. **Warana** (2018) in an article entitled The Relationship between High Performance Organizations and Culture; States that organizations with a functional culture have six characteristics: 1- Sustainable growth 2- Ability to adapt to the environment 3- Focus on long-term performance 4- Integrated management style 5- Focus on job situation development 6- performance drivers' values. Hilian Zhao, **Jiang Wu** (2018) surveyed the impact of organizational culture on company performance: 1. Promoting corporate culture is negatively related to corporate value. 2. Promoting corporate culture is positively and significantly related to corporate creativity output. **Zarei Matin** (2016) designed an effective organizational culture model in project-based organizations. These results are presented in the framework of Corbin and Strauss's grounded process theory framework for the use of academic researchers and project managers. **Denison** (2012) conducted a research on organizational culture with high performance and effectiveness of the organization. In his model, he enumerated the cultural characteristics as follows: 1- Engaging in work 2- Adaptation 3- Coordination & Integration 4- Mission.

The results of the research indicate that the concept of high-performance culture is a completely new and developing topic in the world and various models of it have been presented in foreign articles, but this issue has received less attention in Iran. And there seems to be a theoretical gap in this area in the country. In this study, Researchers are looking to test and evaluate the high-performance organizational culture model in Iran's petrochemical industries.



Theoretical Framework of Research to Determine the Dimensions and Components of High-Performance Organizational Culture:

After studying the theoretical foundations of high-performance organizational culture, the following four axes have been considered to provide a framework for studying this type of organizational culture:

- 1- Extra-organizational bedding factors: As all the factors that exist outside the boundaries of the organization and have a potential impact on all or part of the organization (Berrary& et al., 2004). This dimension includes components of embrace the change and focusing on the customer results (Lepshin, 2020; Ken Oehler, 2018; Graham, 2018; Warrick and Milliman, 2016; Denison, 2012; Span, 2016). This dimension is important because organizations not only interact with their environment, but also this interaction is essential for their survival (Blanchard, 2012).
- 2- Intra-organizational bedding factors: All factors within the organization to create a high-performance organizational culture as a platform and internal infrastructure of the organization and include the components of leadership, personal relationships, goals, values, vision and strategy of the organization (Vayana, 2020; Queen ,2018; Sharir, 2016; Warrick, 2016).
- 3- Process factors: Includes systemic, structural, process, and methods in the organization that align to support their organizational perspective, strategic direction, and goals. This makes it easier for people to do their jobs (Blanchard, 2012). In this dimension, the components of performance management, communication and information, organizational design were identified (Varana, 2018; Blanchard, 2012; Denison, 2013; O'Reilly, 2007).
- 4- Behavioral factors: Includes all factors and reactions that are the result of employees' beliefs and cause changes in individual behavior (Robbins, Organizational Behavior, 2007: 301) In this dimension, the components of empowerment, job engagement and ongoing learning as effective components were identified (Vanaya, 2020; Warana, 2019; Sharir, 2017, etc.).

## Research Methodology

This research is developmental and applied one in terms of purpose. This study is a cross-sectional study in terms of data collection time and is a survey one in terms of data collection method.

The statistical population of this study include some of the employees in Iran's petrochemical industries, including Petropars, Lavan, Fanavaran and Jam Petrochemical Companies. At the time of the research, about 8050 people were employed in the studied companies (Table 2). Using Cochran's formula, the number of statistical samples was calculated to be about 385 people, and among the distributed questionnaires, 400 correct questionnaires were received by the researcher. The sampling method was stratified random which was performed according to Table 3. In the present study, in order to test the proposed hypotheses, questions were presented for each hypothesis and in the form of a questionnaire, information was collected from the sample. Then, the structural equation modeling technique was used to analyze the questionnaire with Amos Software. In this study, researcher-made questionnaires were used to collect information, the validity of which was examined by content validity method. In order to guarantee the validity of the content of the questionnaire, it was read by industrial and academic experts. After obtaining the opinions of experts, the necessary corrections in the questions were made in three stages by Delphi method (by deleting or merging some indicators) and by a high agreement coefficient of Kendall (0.633) in the third stage, it was ensured that the questionnaire was fully agreed by the Delphi panel members (Table 2). In the quantitative and validity part of the questionnaires, the minimum acceptable value of CVR with this number of evaluators is 0.49 according to the Lavche table. The CVR value for all variables was above 0.49. The CVI index was also above 0.79, which indicates that the questions are simple, clear and relevant. In this study, Cronbach's alpha method was used to determine the reliability of the questionnaire. For this purpose, first a prototype including 30 pre-test questionnaires was used and then using the data obtained from these questionnaires and SPSS statistical software, the coefficient Reliability was calculated by Cronbach's alpha method for this tool. Cronbach's alpha coefficient for the whole questionnaire was 0.815. Cronbach's alpha is also calculated for each of the variables, all of which have a coefficient higher

than 0.7. Therefore, it can be concluded that the questionnaire used in this study has a high reliability. The research methodology is summarized in Table (1).

**Table 1. Methodological features of different stages of research**

Methodology	Quantitative research section
Research Methods	<b>Model testing:</b> To evaluate the status of high-performance organizational culture of Iran's petrochemical industries according to the designed model is done in the field survey.
Data collection and information	With the help of a questionnaire that is designed based on the conceptual model of the research.
Statistical population, statistical sample and sampling method	<b>Statistical population:</b> 8050 employees of Iran's petrochemical industries <b>Number of samples:</b> According to the sampling formula of the limited community (Cochran / Morgan table) 385 people. <b>Sampling method:</b> Probability and stratified random.
Data collection tools	Researcher-made questionnaire based on research model
Information analysis	It is done with the help of descriptive and inferential statistics with the help of Lisrel, Spls and Spss Software

**Table 2. Introduction of Delphi Panel experts**

Activity	number of samples	Education	Field of Study	position	Gender	Work Experience
Academic Experts	4 persons	Ph.D.	Human Science	Faculty member	male	At least 10 years
Organizational Consultants	3 persons	Master / Ph.D.	Human Science/technical	CEO and member of board of directors	male	At least 10 years
Organizational Managers	4 persons	Master / Ph.D.	Manager / Chairman	Human Science/technical	male	At least 10 years
The sum of all the experts			11 people			

**Table 3. Society and research sample**

Row	the name of the group	Statistical population	number of samples
1	Jam Petrochemical Co.	2450	117
2	Lavan Petrochemical Co.	1600	77
3	Petropars Co.	2300	110
4	Fanavaran petrochemical Co.	1700	81
Total		8050	385

**Research Findings:**

In the review of the collected data, the demographic characteristics of the participants in the study are identified as tables follows:

**Table 4. Frequency and percentage of gender**

Gender	Frequency	Percentage
Male	355	88.5
Female	45	11.5
Total	400	100

**Table 5. Frequency and percentage of education level**

Education	Frequency	Percentage
P.H.D	9	2.5
M.A	112	28
B.A	191	47.5
ASSOCIATE	88	22
Total	400	100

**Table 6. Frequency and percentage of work experience**

Work Experience (Year)	Frequency	Percentage
Less than 10	85	21.5
Between 10 – 20	186	46.5
Between 20 – 30	114	28.5
More than 30	15	3.5
Total	400	100

**Table 7. Frequency and percentage of age**

Age	Frequency	Percentage
Between 20 – 30	85	21.5
Between 31 – 40	186	46.5
Between 41 – 50	114	28.5
More than 51	15	3.5
Total	400	100

Examination of information on demographic characteristics shows that the highest percentage of respondents with 44.5%, between 31 and 40 years and the highest percentage of respondents with 39.5% had 6 to 10 years of experience, which shows that respondents have sufficient work experience in the organization to have a credible response. In addition, the highest percentage of respondents with 65% (274 people) were men and the lowest percentage with 30% (126 people) were women. Descriptive data also show that the highest percentage of respondents with 54.5% had a bachelor's degree, which indicates that respondents have the necessary knowledge.

**Inferential Statistics:**

Data Normality Test: This test examines data normality according to the following hypotheses.

*H0: The data have a normal distribution.*

*H1: Data do not have a normal distribution.*

The method of judging according to the Kolmogoroff-Smirnoff test table is that if the significance level (sig) for all variables is greater than the test level (0.05), the data distribution is normal. The result of this test is shown in Table 8.

**Table 8. Significance level of Kolmogorov-Smirnov test indices**

Dimension	Significance level of Sig	Value of test statistics	Test result
Extra-organizational Bedding Factors	0.371	0.916	Normal
Intra-organizational Bedding Factors	0.285	0.986	Normal
Process Factors	0.065	1.309	Normal
Behavioral Factors	0.192	1.082	Normal

All variables have a normal distribution according to the result of Kolmogoroff-Smirnoff test because the significance level obtained from this test is greater than 0.05. Therefore, the null hypothesis is confirmed and confirmatory factor analysis and structural equations as well as parametric tests can be used to analyze the relationships.

### Central Indicators, Dispersion and Distribution of The Main Dimensions of The Proposed Model:

According to the Table (9), among the main dimensions of the high-performance organizational culture model, behavioral factors with the highest average (3.92) and intra-organizational bedding factors with an average (3.81) in the second place and extra-organizational bedding factors with an average (3.68) in the third place and process factors with an average (3.65) have the lowest average. Also, the dispersion of behavioral factors data is higher due to higher standard deviation (0.65).

**Table 9. Central indicators, dispersion and distribution of the main dimensions of the high-performance organizational culture model**

Dimensions	Average	Middle	Variance	Standard deviation	Sample size
Extra-org bedding factors	3.68	3.75	0.33	0.57	400
Intra-org bedding factors	3.81	3.83	0.30	0.55	
Process factors	3.65	3.63	0.21	0.46	
Behavioral factors	3.92	4.00	0.42	0.65	

According to Table (10): In the dimension of extra-ganizational bedding factors: the change management component has the highest average (4.02) and the customer focus component has the lowest average (3.19). Also, the dispersion of change management data is higher due to higher standard deviation (0.78).

**Table 10. Central indicators, dispersion and distribution of high performance organizational culture components**

Dimensions	Components	Average	Middle	Standard deviation	Variance
Extra-org Factors	Customer focus	19.3	00.3	61.0	37.0
	Change management	02.4	00.4	78.0	62.0
Intrea-org Factors	Goals	96.3	00.4	76.0	57.0
	Vision	89.3	00.4	71.0	51.0
	Strategy	3.77	4.00	0.80	0.64
	Values	01.4	00.4	72.0	51.0
	Leadership	88.3	00.4	71.0	50.0
	Personnel Relations	95.3	00.4	81.0	65.0
Process Factors	Org.Design	53.3	50.3	63.0	39.0
	Performance Management	99.3	00.4	64.0	41.0
	Communication & Information	94.3	00.4	72.0	52.0
Behavioral Factors	Empowerment	02.4	00.4	75.0	56.0
	Job Engagement	82.3	00.4	78.0	62.0
	Continuous Learning	88.3	00.4	70.0	49.0

In terms of intra-organizational bedding factors: the values component has the highest average (4.01) and the strategy component has the lowest average (3.77). Also, the dispersion of personal relationship data is higher due to higher standard deviation (0.81).

In terms of process factors: the performance management component has the highest average (3.99) and the organizational design component has the lowest average (3.53). Also, the dispersion of communication and open information data is higher due to higher standard deviation (0.72).

In terms of behavioral factors: Empowerment component has the highest average (4.02) and job attachment component has the lowest average (3.82). Also, the dispersion of continuous learning data is higher due to higher standard deviation (0.70).

## Confirmatory Factor Analysis

In this part of the research, the content validity of the research questionnaire has been content validated using confirmatory factor analysis. The measurement model represents the factor loads of the observed variables (factor) for each latent variable. If the factor load is less than 0.3, a weak relationship is considered and it is better to remove it from the model. The average factor load is between 0.3 and 0.6 and if it is greater than 0.6 is very desirable. Among the fit indicators, if the ratio of chi-square to degree of freedom (CMIN / DF) is less than 2, the model has a good fit. RMSEA index is less than 0.05 is desirable. Other indicators, the closer they are to 1, are more desirable (Ghasemi, 1399).

## Assessing The Normality of High-Performance Organizational Culture Components:

Table 11. Assessment of normality of high-performance organizational culture components

Dimensions	components	Minimum	Maximum	Skewness	Critical ratio	Kurtosis	Critical ratio
Intra-bedding factors	Customer focus	2	5	-0.483	-3.944	-0.042	-0.171
	Change	1	5	-0.478	-3.904	-0.093	-0.378
	Multivariate					739.2	954.3
Extra-bedding factors	Goals	1	4	-0.513	-4.185	-0.097	-0.398
	Vision	1	5	-0.396	03.232	-0.386	-1.577
	Strategy	2	5	-0.230	0-.882	-0.500	-2.040
	Personnel Relations	1.60	5	-0.409	-3-340	-0.270	-1.102
	Values	1.857	5	-0.639	-5.218	0.199	0.811
	Leadership	1.50	5	-0/235	-1.915	-0.459	-1.872
	Multivariate					7.550	5.532
Process factors	Org.Design	1	5	-0.629	-5.133	0.512	2.091
	Performance management	1	5	-0.596	-4.867	0.228	0.931
	Communication & information	1.75	5	-0.561	-4.584	0.165	0.675
	Multivariate					9.341	8.402



Dimensions	components	Minimum	Maximum	Skewness	Critical ratio	Kurtosis	Critical ratio
Behavioral factors	Empowerment	2	5	-0.323	-2.556	-0.169	-0.669
	Job engagement	2	5	0.448	3.550	0.702	2.779
	Continuous learning	1.50	5	-0.493	-3.905	1.012	4.007
	Multivariate					6.331	5.015

If the values of skewness or Kurtosis are between -3 and +3, it means that the univariate normality for each item is confirmed (Klein, 2011). Also, if the Mardia coefficient in a multivariate row is less than 10, it means that the multivariate is normal (Byrne, 2010). As you can see in Table 7, for all factors, the values of skewness or elongation are between -3 and +3, and also the critical ratio of the Mardia coefficient in the multivariate row is less than 10, which means that the multivariate normality is confirmed.

### Confirmatory Factor Analysis of Extra-org Bedding Factors

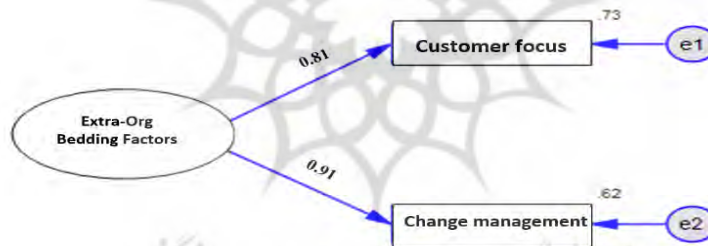


Figure 1. Confirmatory factor analysis of the variable of extra-organizational bedding factors with standard coefficient

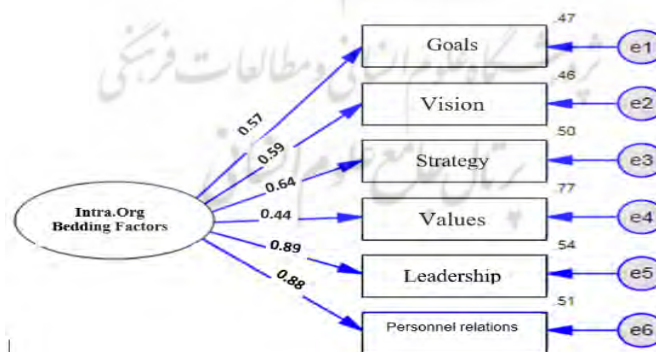
As can be seen in Figure 1, the standard coefficients of all factors are desirable and higher than 0.3. To express the acceptability of the model, fit indices such as normalized Bentler-Bount, relative fit, incremental fit, Tucker-Lewis, adaptive indices and full squares have been used. The results obtained from the model can be examined in Table (12).

**Table 12. Fitness indices of the model of extra-organizational bedding factors**

Index type	English equivalent	Standard rate	Model fit	resault
NFI	Bentler-Bount Normalized Fit Index	0.90<	0.99	Desirable
RFI	Relative Fit Index	0.90<	0.99	Desirable
IFI	Incremental Fit Index	0.90<	0.99	Desirable
TLI	Tucker-Lewis Fit Index	0.90<	0.99	Desirable
CFI	Adaptive Fit Index	0.90<	0.99	Desirable
GFI	Goodness Fit Index	0.90<	0.99	Desirable
RMSEA	Root of the Mean Squares of the Estimation Error	0.05<	0.040	Desirable
CMIN/DF	ratio of Chi-square to the Degree of Freedom	2<	1.637	Desirable
P-value	Significance level	0.05<	0.201	Desirable

As you can see in table No.12, the adaptive fit indices of the developed model are higher than 0.9, and this indicates the acceptance of the model. The RMSEA index is less than 0.05 and equal to 0.04, which is appropriate. The amount of chi-square with a degree of freedom is less than 2 and equal to 1.63, so in general, according to all indicators, the model of external organizational bedding factors has a good fit. Factor loads indicate the effect of the observed variable in explaining and measuring the hidden variables. Significant level is considered to confirm the factor load. If the significance level is less than 0.05, the effect factor load is meaningful. Table (8) reports the factor loads and standard error rate, significance level and significant number of components related to extra-organizational bedding factors.

### Confirmatory Factor Analysis of Intra-org Bedding Factors



**Figure 2. Cfa of the variable of intra-org bedding factors with a standard coefficient**

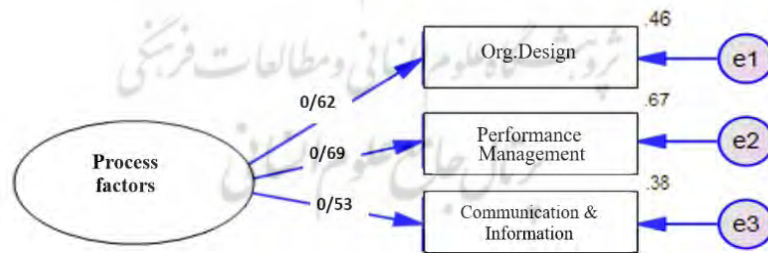
As can be seen in Figure 2, the standard coefficients of all factors are desirable and higher than 0.3. To express the acceptability of the model, fit indices such as normalized Bentler-Bount, relative fit, incremental fit, Tucker-Lewis, adaptive indices and full squares have been used. The results obtained from the model can be examined in Table (13).

**Table 13. Fitness indices of the model of extra-org bedding factors**

Index type	English equivalent	Standard rate	Model fit	Resault
NFI	Bentler-Bount Normalized Fit Index	0.90<	0.98	Desirable
RFI	Relative Fit Index	0.90<	0.97	Desirable
IFI	Incremental Fit Index	0.90<	0.99	Desirable
TLI	Tucker-Lewis Fit Index	0.90<	0.98	Desirable
CFI	Adaptive Fit Index	0.90<	0.99	Desirable
GFI	Goodness Fit Index	0.90<	0.98	Desirable
RMSEA	Root of the Mean Squares of the Estimation Error	0.05<	0.040	Desirable
CMIN/DF	ratio of Chi-square to the Degree of Freedom	2<	1.65	Desirable
P-value	Significance level	0.05<	0.058	Desirable

Table 13 reports the factor loads and standard error rate, significance level and significant number of components related to intra-organizational bedding factors.

### Confirmatory Factor Analysis of Process Factors



**Figure 3. Confirmatory factor analysis of the variable of process factors within the organization with a standard coefficient**

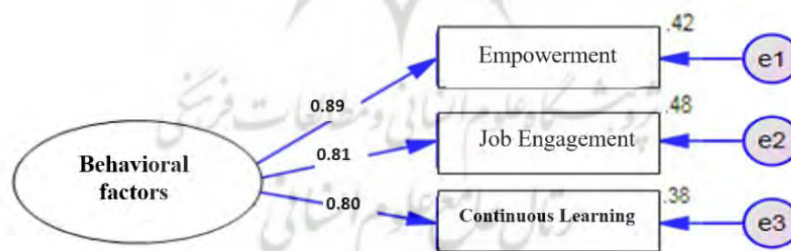
As can be seen in Figure 3, the standard coefficients of all factors are desirable and higher than 0.3. To express the acceptability of the model, fit indices such as normalized Bentler-Bount, relative fit, incremental fit, Tucker-Lewis, adaptive indices and full squares have been used. The results obtained from the model can be examined in Table (14).

**Table 14. Fitness indices of the model of extra-organizational bedding factors**

Index type	English equivalent	Standard rate	Model fit	Resault
NFI	Bentler-Bount Normalized Fit Index	0.90<	0.98	Desirable
RFI	Relative Fit Index	0.90<	0.97	Desirable
IFI	Incremental Fit Index	0.90<	0.99	Desirable
TLI	Tucker-Lewis Fit Index	0.90<	0.99	Desirable
CFI	Adaptive Fit Index	0.90<	0.99	Desirable
GFI	Goodness Fit Index	0.90<	0.98	Desirable
RMSEA	Root of the Mean Squares of the Estimation Error	0.05<	0.031	Desirable
CMIN/DF	ratio of Chi-square to the Degree of Freedom	2<	1.36	Desirable
P-value	Significance level	0.05<	0.013	Desirable

Table (14) reports the factor loads and standard error rate, significance level and significant number of components related to intra-organizational bedding factors.

### Confirmatory Factor Analysis of Behavioral Factors



**Figure 4. Cfa of the variable of behavioral factors with a standard coefficient**

As can be seen in Figure 4, the standard coefficients of all factors are desirable and higher than 0.3. To express the acceptability of the model, fit indices such as normalized Bentler-Bount, relative fit, incremental fit,

Tucker-Lewis, adaptive indices and full squares have been used. The results obtained from the model can be examined in Table (15).

**Table 15. Fitness indices of the model of extra-organizational bedding factors**

Index type	English equivalent	Standard rate	Model fit	Resault
NFI	Bentler-Bount Normalized Fit Index	0.90<	0.96	Desirable
RFI	Relative Fit Index	0.90<	0.91	Desirable
IFI	Incremental Fit Index	0.90<	0.96	Desirable
TLI	Tucker-Lewis Fit Index	0.90<	0.95	Desirable
CFI	Adaptive Fit Index	0.90<	0.99	Desirable
GFI	Goodness Fit Index	0.90<	0.94	Desirable
RMSEA	Root of the Mean Squares of the Estimation Error	0.05<	0.038	Desirable
CMIN/DF	ratio of Chi-square to the Degree of Freedom	2<	1.72	Desirable
P-value	Significance level	0.05<	0.279	Desirable

Table No.15 reports the factor loads and standard error rate, significance level and significant number of components related to high performance organizational culture's dimensiones.

**Table 16. Output of confirmatory factor analysis of process factors**

Dimension		Componants	Non-standard coefficient	Standard Error	Meaningful number	Significance evel	Standard coefficient	Multiple Square orrelationoefficient	Reject or Reception
Extra-Org Bedding Factors	→	Customer focus	1.00	0.085	11.586	1***	0.810	0.656	Reception
	→	Change management	1.00	0.079	15.658	***	0.910	0.828	Reception
	→	Goals	1.00	0.070	12.370	***	0.574	0.329	Reception
Intra-Org Bedding Factors	→	Vision	0.936	0.076	12.384	***	0.591	0.349	Reception
	→	Strategy	1.083	0.085	12.762	***	0.645	0.421	Reception

1. The \*\*\* sign in the table indicates the significance level is less than 0.001

Dimension		Componants	Non-standard coefficient	Standard Error	Meaningful number	Significance level	Standard coefficient	Multiple Square correlation coefficient	Reject or Reception
Intra-Org Bedding Factors	→	Values	1.212	0.079	15.359	***	0.440	0.193	Reception
	→	Leadership	1.00	0.075	13.261	***	0.940	0.883	Reception
	→	Personnel relations	1.101	0.085	12.588	***	0.911	0.829	Reception
process Factors	→	Org.Design	1.00	0.078	11.685	***	0.731	0.534	Reception
	→	Performance management	0.719	0.135	5.360	***	0.830	0.690	Reception
	→	Communication & information	2.051	0.275	7.374	***	0.790	0.620	Reception
Behavioral Factors	→	Empowerment	1.00	0.025	12.854	***	0.890	0.790	Reception
	→	Job engagement	1.00	0.085	14.822	***	0.812	0.660	Reception
	→	Continuous learning	1.00	0.021	11.252	***	0.810	0.657	Reception

According to the output of lisrel Software in Table 16, and significant levels for confirmatory factor analysis of the variable, all the components of high-performance culture's dimensiones had a suitable factor load and their relationship with their latent variable were confirmed (significance level of all variables is zero and less than 0.05). According to the multiple square correlation coefficients (the second power of the standard coefficient):

In dimension of Extra-org Bedding Factors, the component of change management (0.828) is more and the component of customer focus (0.656) is less effective role in defining and explaining the variables of extra-organizational context. In general, it can be claimed that change management and customer focus are the most important extranal bedding factor within the organizational culture model with high performance and have a strong effect.

In dimension of Intra-org Bedding Factors, the component of Leadership (0.88) is higher and the component of Values (0.193) is less than other components in defining and explaining the variables of the bedding factors within the organization. In general, it can be claimed that leadership are the most important internal bedding factor within the organizational culture model with high performance and have a strong effect. According to Table 12, respectively after leadership (0.88) , personnel relations (0.829), strategy (0.412), vision (0.349), goals (0.329) and values (0.193) have played a role in explaining the variables of internal bedding factors within the organization.

In dimension of Process Factors, the component of performance management (0.690) is more and the component of communication and information (0.620) is less than other components in defining and explaining the variables of Process factors. In general, it can be claimed that performance management is the most important process factor in the model of high-performance culture and has a strong effect and after it components of organizational design (0.690) and open communication & information (0.620) respectively, have played a role in explaining the variables of process factors.

In dimension of Behavioral Factors, the component of empowerment (0.790) is more and the component of continuous learning (0.657) is less than other components in defining and explaining the variables of behavioral factors. According to Table 12, after Empowerment (0.790), Engagement (0.660) and continuous learning (0.657), respectively, have played a main role in explaining the variables of behavioral factors.

In the following (in the Figures 5, 6) the model of structural equations of high-performance organizational culture and its dimensions in two modes of standard estimation and significance coefficient obtained from the research is shown.



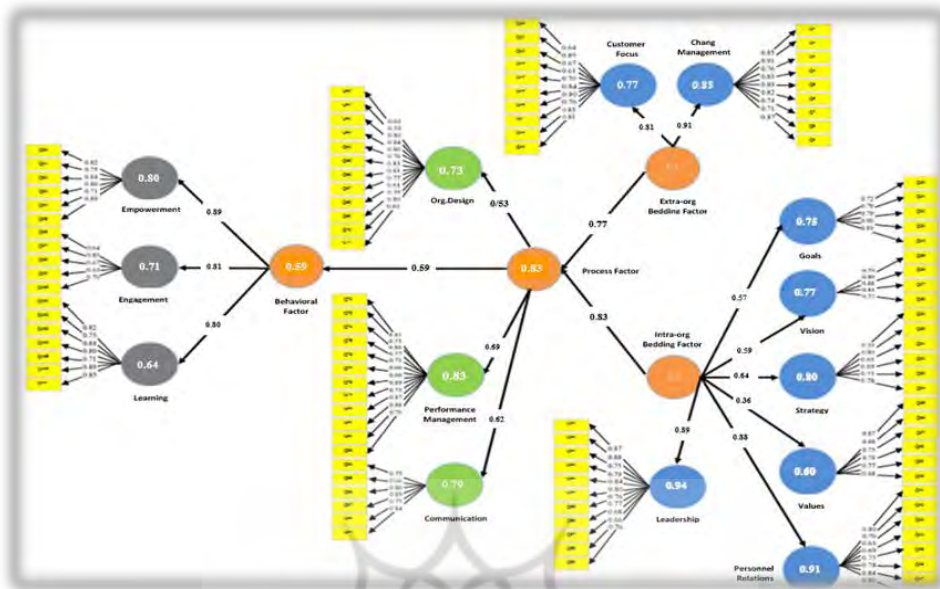


Figure 5. Structural model of high performance organizational culture in Standard estimation.

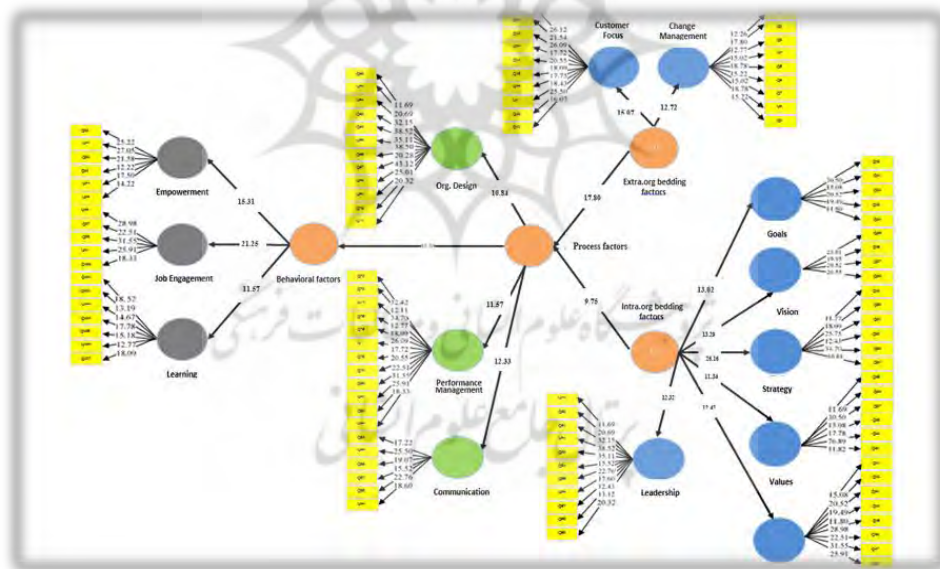


Figure 6. Structural model of of high-performance organizational culture in Significance coefficients.



## Discussion and Conclusion

The purpose of this study is to evaluate and test the model of high-performance organizational culture in Iran's petrochemical industries.

In this regard, a mixed exploratory method was considered to conduct this research.

In the background section, it was found that numerous and important foreign studies in the field of high-performance organizational culture have been conducted in recent years, and in this regard, various components and indicators of these studies have been included for HPC but as mentioned, most of these research in the field of high performance organizational culture has been done with a specific approach required by the organizations and their target companies and do not have that necessary comprehensiveness and some of these studies have only mentioned a few components or indicators in this field. For example, in Warrick studies (2018) with the approach of key values and in Garvin studies (2019) with the approach of basic directions, the issue of HPC has been addressed, or in the studies of Moylanen and Marsick studies (2018) with the approach of learning, this issue has been considered. This indicates that although these studies on the subject of high-performance organizational culture have been presented, they often do not end up providing a comprehensive model of HPC. Therefore, the lack of a comprehensive model in the field of "high-performance organizational culture" in domestic and foreign studies is quite evident. In this study, researchers have tried to enumerate all the features of high-performance organizational culture with a mixed exploratory approach (qualitative and quantitative), which itself indicates the researchers' efforts to comprehensively study this issue and design a comprehensive HPC model. In this research, all dimensions, components and indicators of high-performance organizational culture, which are included in the qualitative part of the research, have been tested and evaluated by a quantitative method.

Based on extracted indicators in qualitative part of research, a researcher-made questionnaire was designed which was approved by the elites during three times using the Delphi method. These questionnaires were distributed and collected among the target samples, which were then analyzed using cognitive demographic characteristics using statistical analysis. The modeling results showed that all the relationships between the

dimensions and components of high-performance organizational culture are significant in this study.

Therefore, in the quantitative part of the research, these dimensions, components and indicators were tested and confirmed by confirmatory factor analysis and the research model can be considered as a suitable model and reflect the relationships between dimensions and variables well. All research variables had a normal distribution according to the result of Kolmogoroff-Smirnoff test. Because the significance level obtained from this test was greater than 0.05, the null hypothesis is confirmed and confirmatory factor analysis and structural equations as well as parametric tests were used to analyze the relationships. In this research, the following dimensions and components have been identified as a framework of high-performance organizational culture:

- 1- Behavioral factors with an average of 3.92 are in the first place of importance among the dimensions of high-performance culture, in which the component of Empowerment with a factor load of 0.89 is in the first priority which shows the importance of this component in the realization of high-performance culture. The component of Job Engagement (0.81) and Continuous Learning (0.80) are in the next priorities.
- 2- Internal bedding factors with an average of 3.81 are in the second rank among the dimensions of high-performance culture. In this dimension, the component of Leadership with a factor load of 0.88 is in the first place and the components of personnel relations (0.88), Strategy (0.64), Vision (0.59), Goals (0.57), Values (0.44) are in the next priorities, respectively.
- 3- External bedding factors with an average of 3.68 are in the third rank among the dimensions of high-performance culture. In this dimension, the components of Change Management with a factor load of 0.91 is in the first priority and the component of Customer Focus with a factor load of 0.81 is in the next priority of importance.
- 4- Process factors with an average of 3.65 are in the fourth rank among the dimensions of high-performance culture. In this dimension, the Performance Management component with a factor load of 0.69 is in the first place, the components of Organizational Design (0.62) and Communication & Information (0.53) are in the next, respectively.

The relationships between research variables are also based on path analysis as follows:

- ⊗ External bedding factors affect process factors by 77%.
- ⊗ Internal bedding factors also affect process factors by 83%.
- ⊗ Process factors, in turn, have a 59% effect on behavioral factors.

To sum up, the overall results of the study show that among the dimensions of high-performance organizational culture, the highest priority in explaining HPC is behavioral factors and the lowest priority is process factors. And among all the components of high-performance organizational culture, the highest priority was given to the leadership component and the lowest priority was given to the organizational design component. This prioritization can pave the way for leaders and managers to prioritize their cultural transformation.

#### **Research Suggestions:**

According to the research data, behavioral factors had the highest priority in explaining high-performance organizational culture. In other words, changes in these factors will lead to a significant increase or decrease in high-performance organizational culture. Then, Intra-organizational bedding factors, extra-organizational bedding factors and behavioral factors were important in explaining high-performance organizational culture, respectively. Therefore, researchers present their suggestions in the following four categories in order of priority (highest average among respondents):

According to the research findings and based on factor analysis of behavioral factors, in this dimension, the components of empowerment and job engagement had the highest factor load. Therefore, in this regard, it is suggested:

1. Managers should encourage and promote people who are not satisfied with the usual and average conditions and are constantly looking for the best results.
2. Managers should facilitate team and collaborative work conditions among employees and expand team and group encouragement to encourage individuals to achieve collaborative work results.
3. The organization should provide conditions for people to record and write down their experiences, learnings and effective actions, and

these experiences should be exchanged continuously between the people of the organization.

4. Managers should provide conditions for people to feel that the organization belongs to them and share in its profits and losses, and to feel proud of being a member of this organization.

According to the research findings and based on factor analysis of Intra-organizational bedding factors within the organization, components of leadership and personal relationships achieved the highest factor loads. Therefore, in this regard, it is suggested:

1. The leaders of the organization should be selected from people who are free from any arrogance and pride and with their appropriate behavior can be a model for other employees.
2. Organizational leaders should be selected from people who have the necessary expertise and skills to be able to better understand employees and be a better coach with their employees in difficult organizational situations.
3. Organizational leaders should prioritize collective interests over individual interests and take the lead in their own organizational change and hardship.
4. Organizational leaders need to have friendly interactions with their employees and give them a sense of worth, pride and strength by talking.
5. High-performance organizational culture should be continuously taught to employees and people should be justified about the importance and role of this type of culture in achieving better results.

According to the research findings and based on factor analysis of extra-organizational bedding factors, the components of change management and customer focus achieved the highest factor loads. Therefore, in this regard, it is suggested:

1. Leaders should note that they should convince the employees of the organization about the importance and causes of change.
2. The organization must have a predetermined plan for each change situation.
3. Assure employees that the results of change will improve the position of the organization and the overall position of individuals, and ultimately will benefit employees from the benefits gained for the organization.

4. The organization should reinforce a culture of customer focus by "sharing outstanding service stories" to both motivate employees and convey to customers an understanding of how important their satisfaction is to the organization.
5. Managers are advised to design a system for studying customer groups and discovering their needs for their organization.

According to the research findings and based on factor analysis of process factors, the components of performance management and open information and communication obtained the highest factor loads. Therefore, in this regard, it is suggested:

1. Performance review meetings should be held regularly in the organization and people are aware of the goals and processes of performance improvement.
2. Managers should provide conditions for employees to know exactly what the organization expects of them and why they should be held accountable.
3. Feedback should be institutionalized in all businesses and the organization should continuously provide feedback on the behaviors and performance of individuals and give the necessary recommendations to improve performance.
4. Individual evaluation should be based on organizational culture and values, as well as team evaluation and self-evaluation systems should be developed in the organization.

#### **Research Limitations**

1. Due to time constraints, this study was not conducted at the macro level of the country, and only studied the Iranian petrochemical industry - due to its accessibility as a statistical population.
2. This research has been conducted as a high-performance organizational culture in Iran's petrochemical industry, so the generalization of results in other organizations should be done with caution.
3. The quantitative and validating part of the model in this research has been done by a questionnaire, so it is possible; A) Some people have refused to give a real answer and have given an unreal answer b) The large number of questions may have affected the accuracy of the respondents.

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